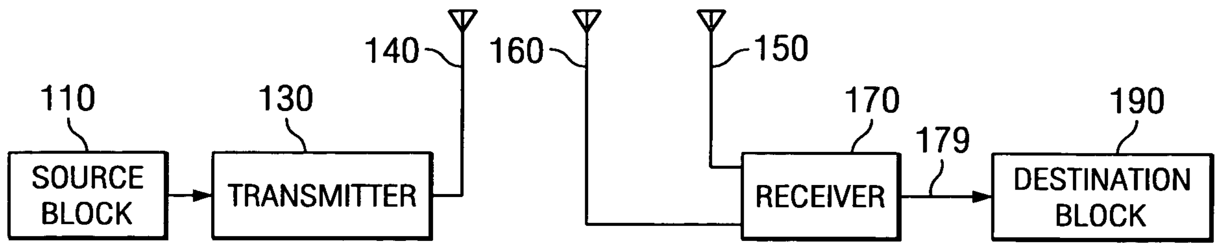

FIG. 1

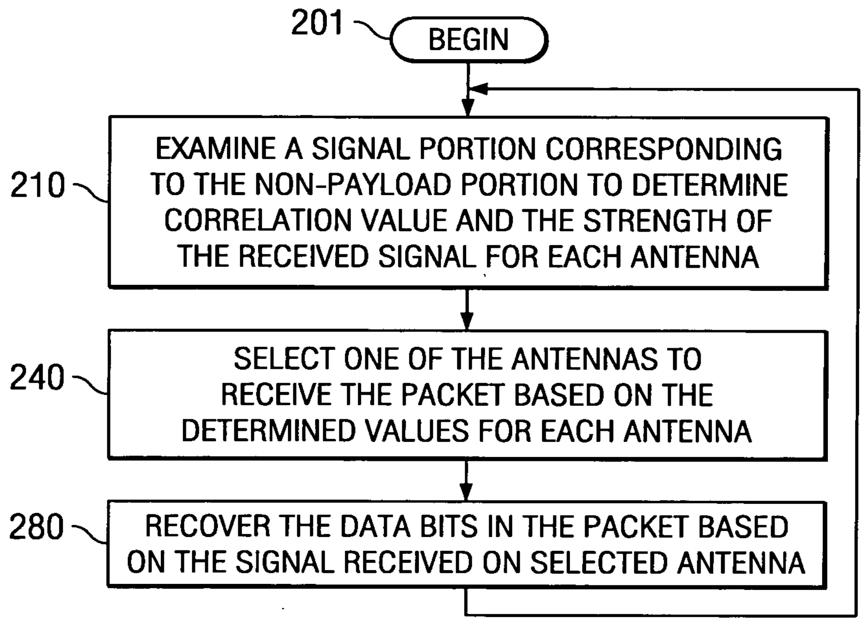

FIG. 2

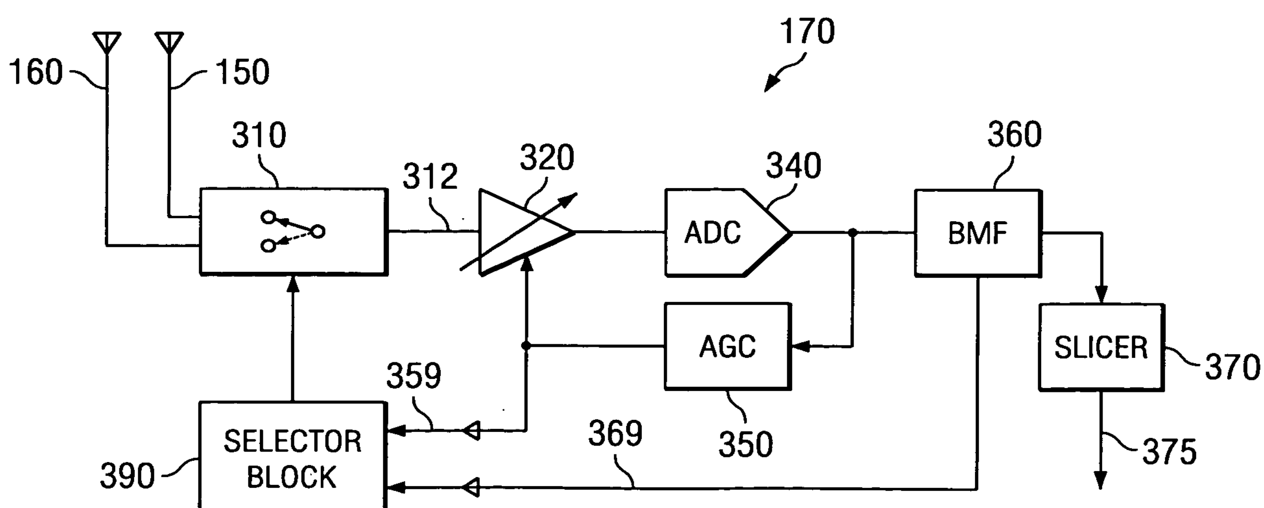

FIG. 3

$$\begin{cases}
(1)\ 1/K < \sigma_1^2 / \sigma_2^2 < K \\
(2)\ \mathbf{x}_k = s_k\, \mathbf{b} \\
(3)\ \mathbf{y}_{1,k} = \sqrt{G_1}(\alpha_1 \mathbf{x}_k + \mathbf{n}_{1,k}) \\
(4)\ \mathbf{y}_{2,k} = \sqrt{G_2}(\alpha_2 \mathbf{x}_k + \mathbf{n}_{2,k}) \\
(5)\ G_i = \dfrac{P}{|\alpha_i|^2 + \sigma_i^2} \\
(6)\ \quad = \dfrac{P}{\sigma_i^2(1+\rho_i)} \\
(7)\ |\mathbf{b}^H \mathbf{y}_{i,k}|^2 = G_i[|\alpha_{i,k}|^2 |s_k|^2 \mathrm{N}^2 + |\mathbf{b}^H \mathbf{n}_{i,k}|^2 + 2Re(\mathbf{b}^H \mathbf{n}_{i,k} \mathrm{N}\, \alpha_{i,k}^* \, s_k^*)]
\end{cases}$$

FIG. 4A

$$\begin{cases}
(8)\quad |\mathbf{b}^H \mathbf{y}_{i,k}|^2 = \dfrac{\rho_i}{1+\rho_i} \mathrm{N}^2 \mathrm{P} + 2\Re\left(\dfrac{\mathbf{b}^H \mathbf{n}_{i,k}}{\sigma_i} \dfrac{\alpha_{i,k}^* s_k^*}{\sigma_i} \dfrac{NP}{1+\rho_i}\right) + \left|\dfrac{\mathbf{b}^H \mathbf{n}_{i,k}}{\sigma_i}\right|^2 \dfrac{P}{1+\rho_i} \\
(9)\quad P([C_1, C_2, G_1, G_2]/\rho_1 > \rho_2) = \int_{\rho_2=0}^{\infty} \int_{\rho_1=\rho_2}^{\infty} f(C_1, C_2, G_1, G_2/\rho_1, \rho_2, \sigma_1^2, \sigma_2^2)\, f(\rho_1, \rho_2)\, f(\sigma_1^2, \sigma_2^2)\, d\rho_1 d\rho_2 d\sigma_1^2 d\sigma_2^2 \\
(10)\ P([C_1, C_2, G_1, G_2]/\rho_1 > \rho_2) = \int_{\rho_2=0}^{\infty} \int_{\rho_1=\rho_2}^{\infty} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(G_1, G_2/\rho_1, \rho_2, \sigma_1^2, \sigma_2^2)\, f(\rho_1, \rho_2)\, f(\sigma_1^2, \sigma_2^2)\, d\rho_1 d\rho_2 d\sigma_1^2 d\sigma_2^2 \\
(11)\ f(G_1, G_2/\rho_1, \rho_2, \sigma_1^2, \sigma_2^2) = \delta\left(G_1 - \dfrac{P}{\sigma_1^2(1+\rho_1)}, G_2 - \dfrac{P}{\sigma_2^2(1+\rho_2)}\right) \\
(12)\quad = \delta\left(\sigma_1^2 - \dfrac{P}{G_1(1+\rho_1)}, \sigma_2^2 - \dfrac{P}{G_2(1+\rho_2)}\right)
\end{cases}$$

FIG. 4B

$$a < \frac{P}{G_1(1+\rho_1)} < b \tag{13}$$

$$a < \frac{P}{G_2(1+\rho_2)} < b \tag{14}$$

$$\rho_1 > \rho_2 \tag{15}$$

$$\rho_1, \rho_2 > 0 \tag{16}$$

$$\int_{\rho_2=max(\frac{P}{bG_2}-1,0)}^{\frac{P}{max(G_1,G_2)a}-1} \int_{\rho_1=max(\frac{P}{bG_1}-1,\rho_2)}^{\frac{P}{aG_1}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, \frac{1}{(b-a)^2}\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 \tag{17}$$

$$\int_{\rho_2=max(\frac{P}{bG_2}-1,0)}^{\frac{P}{max(G_1,G_2)a}-1} \int_{\rho_1=max(\frac{P}{bG_1}-1,\rho_2)}^{\frac{P}{aG_1}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 >$$

$$\int_{\rho_1=max(\frac{P}{bG_1}-1,0)}^{\frac{P}{max(G_1,G_2)a}-1} \int_{\rho_2=max(\frac{P}{bG_2}-1,\rho_1)}^{\frac{P}{aG_2}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 \tag{18}$$

$$\int_{\rho_2=max(\frac{1}{g_2K}-1,0)}^{\frac{1}{max(g_1,g_2)}-1} \int_{\rho_1=max(\frac{1}{Kg_1}-1,\rho_2)}^{\frac{1}{g_1}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 >$$

$$\int_{\rho_1=max(\frac{1}{Kg_1}-1,0)}^{\frac{1}{max(g_1,g_2)}-1} \int_{\rho_2=max(\frac{1}{Kg_2}-1,\rho_1)}^{\frac{1}{g_2}-1} f(C_1/\rho_1)\, f(C_2/\rho_2)\, f(\rho_1,\rho_2)\, d\rho_1\, d\rho_2 \tag{19}$$

FIG. 4C

505 If $(g2/g1) > T1$, then select Antenna 160

510 else if $(g2/g1) < (1/T1)$, then select Antenna 150

515 else if $(g2/g1) > 0$, then

520 If $C1 \notin [\mu_\infty - c1(g2/g1) - m1(g2/g1)*g2dB,\ \mu_\infty + c1(g2/g1) + m1(g2/g1)*g2dB]$ &
$C2 \in [\mu_\infty - c2(g2/g1) - m2(g2/g1)*g2dB,\ \mu_\infty + c2(g2/g1) + m2(g2/g1)*g2dB]$,
then select Antenna 160

525 else select Antenna 150

end if

530 else if $g2/g1 < 0$ then

535 If $C2 \notin [\mu_\infty - c2(g2/g1) - m2(g2/g1)*g2dB,\ \mu_\infty + c2(g2/g1) + m2(g2/g1)*g2dB]$ &
$C1 \in [\mu_\infty - c1(g2/g1) - m1(g2/g1)*g2dB,\ \mu_\infty + c1(g2/g1) + m1(g2/g1)*g2dB]$
then select Antenna 150

540 else select Antenna 160, end if

550 else if $g2 < T2$

555 If $(C1 - \mu_\infty)^2 - (C2 - \mu_\infty)^2 < 0$, then select Antenna 150

560 else select Antenna 160, end if

570 else if $C1 > C2$ then, select Antenna 150

580 else select Antenna 160, end if

FIG. 5